

LONGITUDINAL CHANGES IN HEALTH STATUS OF THE CHILDHOOD CANCER SURVIVOR COHORT

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Purpose: To evaluate health status as a function of age among childhood cancer survivors and compare the trajectory of change in health status of survivors to that of siblings.

Methods: Adult survivors of childhood cancer and siblings in the Childhood Cancer Survivor Study completed health surveys in 1995, 2003 and 2007. Participants were classified as having poor outcomes in general health, mental health, functional status, or daily activities, if they indicated moderate to extreme impairment in any domain. Generalized estimating equations were used to compute marginal models comparing survivors to siblings for each outcome as a function of age, and to identify host and treatment related factors associated with age related worsening health status.

Results: Among 9711 survivors, 53.3% were male and 87.1% Caucasian. Among 3206 siblings, 47.4% were male and 88.3% Caucasian. In models adjusted for race, age and sex, survivors were more likely to report poor general health (13.2% vs. 5.9%, $p < 0.001$), poor mental health (17.6% vs. 10.8%, $p < 0.001$), functional impairments (16.8% vs. 4.0%, $p < 0.001$) and daily activity limitations (13.9% vs. 6.3%, $p < 0.001$). Age was a significant predictor of poor health status. When compared to those 18-29 years old, participants aged 30-39 were 1.3 (95% CI 1.2-1.4) and those aged 40+ were 1.7 (95% CI 1.5-1.8) times more likely to report poor general health. There was a survivor by age interaction as the percentage of survivors with more than 3 poor health status outcomes increased by 5.4% from youngest to oldest age group compared to a 1.5% increase among siblings ($p < 0.001$). In adjusted models limited to survivors only, exposure to alkylating agents, cranial or chest radiation, surgery involving the brain or bladder, and lower extremity amputation were associated with poor general health, functional impairments and activity limitations.

Conclusions: Childhood cancer survivors have an inferior health status compared to a sibling control group. Health status declines more rapidly with age among survivors than among siblings, and is related to treatment exposure.